

CLAIMS

We claim:

1. A nursing bottle adapted to be filled with liquid and capped with a nipple, whose interior remains at atmospheric pressure when the bottle is inverted during use, the nursing bottle comprising:

5 (a) a vertical container having a mark defining a horizontal plane in the upper one-half of the container, the container being adapted to contain a quantity of liquid not exceeding the mark, the container having an air space above the liquid, and the container having a first, radially
10 central opening at its top for the reception of a nipple;

(b) a reservoir having a volume less than the volume of the container and being located such that substantially all its volume is above the mark in the container;

15 (c) a vertical liquid conduit from a point near the bottom of the container to the bottom of the reservoir, the liquid conduit having a volume less than that of the reservoir so that, when the bottle is filled with liquid and inverted, the liquid in the liquid conduit only partially
20 fills the reservoir and an air space remains in the reservoir; and

(d) an air conduit from outside the bottle to a point in the reservoir where the air space exists when the bottle is filled with liquid and inverted; such that, when
25 the nursing bottle is filled with liquid and fitted with a nipple, the liquid level in the container and in the liquid conduit are the same; and also such that, when the nursing bottle is inverted, the liquid from the liquid conduit flows into, and remains in, the reservoir for as long as the
30 bottle is inverted and an open air passage is established through the air conduit-reservoir-liquid conduit to carry ambient air into the container and thereby maintain atmospheric pressure.

2. The nursing bottle of claim 1 wherein the reservoir is located adjacent the air space at the top of the container.

3. The nursing bottle of claim 2 wherein the reservoir has a volume greater than the volume of the liquid conduit.

4. The nursing bottle of claim 3 wherein the liquid conduit and reservoir are located inside the container.

5. The nursing bottle of claim 3 wherein the liquid conduit and reservoir are located outside the container.

6. The nursing bottle of claim 5 wherein the liquid conduit and reservoir are detachable from the container.

7. A nursing bottle adapted to be filled with liquid and capped with a nipple, whose interior remains at atmospheric pressure when the bottle is inverted during use, the nursing bottle comprising:

5 (a) a container adapted to contain a quantity of liquid at its bottom and having an air space at its top, the container having a first, radially central opening at its top for the reception of a nipple;

10 (b) a reservoir located such that substantially all its volume is above the liquid level in the container;

(c) a vertical liquid conduit from a point near the bottom of the container to the bottom of the reservoir, the liquid conduit having a volume less than that of the reservoir so that, when the bottle is filled with liquid and inverted, the liquid from the liquid conduit only partially fills the reservoir and an air space remains in the reservoir; and

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(d) an air conduit from outside the bottle to a point in the reservoir where the air space exists when the

20 bottle is filled with liquid and inverted; such that, when
the nursing bottle is filled with liquid and fitted with a
nipple, the liquid level in the container and in the liquid
conduit are the same; and also such that, when the nursing
25 bottle is inverted, the liquid from the liquid conduit flows
into, and remains in, the reservoir for as long as the
bottle is inverted and an open air passage is established
through (the air conduit-reservoir-liquid conduit) to carry
ambient air into the container and thereby maintain
atmospheric pressure.

8. The nursing bottle of claim 7 wherein the reservoir
is located adjacent the air space at the top of the
container.

9. The nursing bottle of claim 8 wherein the
reservoir has a volume greater than the volume of the liquid
conduit.

10. The nursing bottle of claim 9 wherein the liquid
conduit and reservoir are located inside the container.

11. The nursing bottle of claim 9 wherein the liquid
conduit and reservoir are located outside the container.

12. The nursing bottle of claim 11 wherein the liquid
conduit and reservoir are detachable from the container.

Sub. a> 13. A nursing bottle adapted to be filled with liquid,
wherein the bottle prevents a vacuum from being formed
within the bottle when inverted, the nursing bottle
comprising:

5 a container having an open top and being adapted to
contain a quantity of liquid;

a vent unit adapted to fit within the container
comprising a reservoir tube having an upper and lower

10 portion, the reservoir tube having a proximal first end adapted to fit adjacent the top of the container and an open second end projecting (sufficiently downwardly) in the container; and

15 an airway in the vent unit extending between the outside of the container and a point in the reservoir tube above the level of the liquid trapped in the reservoir tube when the nursing bottle is inverted.

14. The nursing bottle according to claim 13 wherein the vent unit includes a vent tube having a distal end, the vent tube projecting into the reservoir tube sufficiently so the distal end of the vent tube is above the level of liquid trapped in the reservoir tube when the bottle is inverted.

15. The nursing bottle according to claim 13 wherein the vent unit further comprises (an insert) which secures to the reservoir tube.

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~~16.~~ The nursing bottle according to claim ~~13~~ wherein the vent unit is detachable from the container.

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~~17.~~ The nursing bottle according to claim ~~13~~ wherein the cross-section of the upper portion of the reservoir tube has a larger diameter than the cross-section of the lower portion of the reservoir tube.

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~~18.~~ The nursing bottle according to claim ~~14~~ wherein the vent tube has an opening at its distal end.

Sub a2, 19. A container which vents the container to the atmosphere to resist the formation of a vacuum when the container is inverted to dispense a liquid therefrom, the container comprising: a receptacle adapted to hold liquid, a liquid outlet for dispensing the liquid when the container is inverted, a vent unit adapted to fit within the

receptacle comprising a reservoir tube having upper and lower portions, the reservoir tube having a proximal first end adjacent the top of the receptacle and an open second end projecting sufficiently downwardly into the receptacle; an airway in the vent unit extending between the outside of the receptacle and a point in the reservoir tube above the level of liquid trapped in the reservoir tube when the container is inverted.

~~8~~ 10. An improved baby bottle of the type having a nipple, the improvement comprising:

a reservoir tube having a proximal first end and an open second end, the second end of the reservoir tube projecting sufficiently downwardly in the bottle so that when the bottle is inverted the second end of the reservoir tube is above the level of the liquid trapped in the inverted bottle; and

an air passage between the outside of the bottle and a point in the reservoir tube above the level of the liquid trapped inside the reservoir tube when the bottle is inverted, the air passage and reservoir tube allowing atmospheric air to flow into the bottle to prevent the formation of a vacuum within the bottle when liquid is withdrawn.

Sub. a3> 21. A vent unit adapted to install in the open top of a container to vent the container to the atmosphere to resist the formation of a vacuum when the container is inverted to dispense liquid, the vent unit comprising: a reservoir tube having a proximal first end and an open second end, wherein the first end is adjacent the open top of the container, the second end of the reservoir tube projecting sufficiently downwardly in the container so that when the container is inverted the second end is above the liquid in the inverted container, the vent unit having an airway extending from the exterior of the container to a

point in the reservoir tube above the level of the liquid trapped inside the reservoir tube when the container is inverted.
